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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,012	03/24/2005	Tianhong Chen	7512.130	1739

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EXAMINER

HAMIDINIA, SHAWN A

ART UNIT PAPER NUMBER

1653

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/529,012

Applicant(s)

CHEN ET AL.

Examiner

Shawn Hamidinia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Priority***

1. The current application filed March 24, 2005 claims benefit of foreign United States application, 60413917, filed on September 26, 2002.

***Information Disclosure Statement***

2. The information disclosure statements received March 24, 2005 has been considered. Please see the attached initialed PTO-1449.

***Claim Rejections - 35 USC § 112, First Paragraph-Written Description***

3. Claim 3 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Claim 3 is directed to a polymer comprising chitosan bound to a residue of a polypeptide, wherein the polypeptide is not a polypeptide that is covalently bonded to chitosan in surimi. The American Heritage Dictionary defines surimi as minced, processed fish used in the preparation of imitation seafood, especially imitation shellfish.

A review of the full content of the specification did not provide any description nor support of the instant claim directed to chitosan bound to a residue of a polypeptide, wherein the polypeptide is not a polypeptide that is covalently bonded to chitosan in surimi. The specification has no representative examples of a polypeptide bonded to chitosan in surimi, which is encompassed by these claims, nor is there any advantages disclosed as to why a polypeptide cannot be a polypeptide bonded to chitosan in surimi. As such, the specification fails to provide sufficient descriptive information for the structural and functional relationship of the claimed chitosan in surimi, wherein the polypeptide is not a polypeptide that is bonded to chitosan in surimi. There is no description discussing surimi or a polypeptide covalently bonded to chitosan in surimi, which is critical to the structure and function of the instant claim. Furthermore, the specification does not provide structural teachings sufficient to enable one of skill in the art to identify why a polypeptide cannot be one that is covalently bonded to chitosan in surimi.

Since there is no complete description of the structural and chemical properties of the polypeptide covalently bonded to chitosan in surimi, there can be no disclosure of any particular structure to function/activity relationship for any polypeptide bonded to chitosan in surimi. Given this lack of disclosure, Applicants' written description of the claimed invention is insufficient to show that Applicants were in possession of the full scope of the claimed invention.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 4-8, 10-16 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Muzzarelli et al. (1994). Applicant discloses crosslinking chitosan to gelatin to form a chitosan-protein film under the catalytic action of tyrosinase (see paragraph 5, page 295). Muzzarelli et al. further teach that quinones obtained by oxidation of phenols under the catalytic action of tyrosinase, immediately react with a chitosan film (see paragraph 2, page 297). This clearly anticipates figure 2 of the specification that diagrams the reaction of gelatin with tyrosinase, in the presence of oxygen, to form a quinone intermediate, which can then crosslink with chitosan forming the final gelatin-chitosan product. Muzzarelli et al. further teach that the chitosan-gelatin blend is treated with tyrosinase which show different physical characteristics than without tyrosinase (see Table 3, page 299; paragraph 1, page 299).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being obvious over Kubo et al. (US 6,044,800).

Kubo et al. disclose examples of raw materials, such as chitosan and gelatin, which can be crosslinked enzymatically with transglutaminase to enhance the strength and elasticity (see column 3, lines 30-37).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to crosslink chitosan and gelatin with transglutaminase as discussed by Kubo et al. with the expectation of enhancing strength and elasticity of the material.

8. Claims 11, 17-20 are rejected under 35 U.S.C. 103(a) as being obvious over Tanihara et al. (US 5,658,592).

Tanihara et al. (1997) disclose a polymer gel, whereby the polymer materials constructing the polymer gel includes chitosan, and proteins such as gelatin (see column 7, lines 23-27). Tanihara et al. further disclose that crosslinking a compound from these polymer materials singly or a mixture of two or more of the materials with

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covalent bonds, a water swelling polymer gel can be obtained (see column 7, lines 32-36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the polymer materials chitosan and gelatin as discussed by Tanihara et al. with the expectation of a crosslinking these compounds singly or a mixture of two or more of the materials so that a water swelling polymer gel could be obtained.

### ***Conclusion***

9. No claim is allowed.

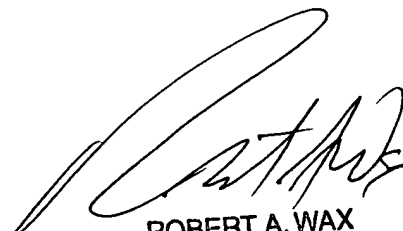
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn Hamidinia whose telephone number is (571) 272-4534. The examiner can normally be reached on Mon-Fri from 9:00 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached on (571) 272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAH



ROBERT A. WAX  
PRIMARY EXAMINER